

TEVLIN, A. M., kand.tekhn.nauk, dotsent

Helical design and its use in the solution of geometrical and engineering problems. Izv.vys.ucheb.zav.; mashinostr. no.2: 130-141 '62. (MIRA 15:5)

1. Moskovskiy aviatsionnyy institut.  
(Geometry, Projective)

CHETVERUKHIN, Nikolay Fedorovich, prof.; LEVITSKIY, Vladimir  
Sergeyevich; PRYANISHNIKOVA, Zoya Ivanovna; TEVLIN,  
Abram Maksimovich; FEDOTOV, Georgiy Ivanovich

[Descriptive geometry] Nachertatel'naia geometriia. Izd.2.,  
perer. i dop. [By] N.F.Chetverukhin i dr. Moskva, Vysshiaia  
shkola, 1963. 419 p.  
(MIRA 17:5)

BARTOLOMEY, G.G., kand.tekhn.nauk; SUVOROV, V.A., inzh.; TEVLIN, S.A., inzh.

Study of the hydrodynamics of the steam generator of a two-stage  
atomic power plant. Teploenergetika 10 no.1:52-58 Ja '63.

(MIRA 16:1)

1. Moskovskiy energeticheskiy institut.  
(Atomic power plants)

44278

S/096/63/000/001/005/006  
E194/E155

211000

AUTHORS: Bartolomey, G.G., Candidate of Technical Sciences;  
Suvorov, V.A., Engineer; and Tevlin, S.A., Engineer.

TITLE: An investigation of the hydrodynamics of the steam  
generator of a double-circuit nuclear power station

PERIODICAL: Teploenergetika, no.1, 1963, 52-58.

TEXT: Steam tends to accumulate in parts of the very compact  
heat-exchangers used with boiling-water reactors in nuclear power  
stations. Accordingly, boiler no.3 of TETs MEI was adapted as a  
thermal model of a double-circuit boiling-water reactor, to study  
the proportion of steam in the steam/water mixture at various  
points in the steam generator. The proportions were determined by  
passing gamma radiation through the mixture and measuring the  
attenuation. In preference to large external sources of radiation,  
cobalt-60 sources on steel rods were used in pockets resembling  
thermometer pockets, fitted at 14 different heights in the steam  
generator. Full theoretical justification of the method is given,  
together with the necessary formula. It assumes that the  
radiation detector is adequately shielded against radiation

Card 1/2

An investigation of the hydrodynamics, ... S/096/63/000/001/005/006  
E194/E155

dispersed within the water layer, so that the latter has a linear absorption whatever the proportion of steam in the mixture. The thickness of the collimator screen (in front of the detector) and of the container walls of the detector were determined experimentally. The mean of three determinations of steam-content agreed with Kutateladze's formula. The proportion of steam increased more rapidly in the upper tube bundles of the generator than in the lower. Those mid-way added hardly any steam, probably because the heat-exchange surface was excessive. Steam was distributed irregularly over the section of the upper bundles, being concentrated near the drum walls. Steam-content was everywhere fluctuating, probably because of the shallowness of the bubbling layer over the heat-exchange surface. If its depth were increased, by removing some tube bundles, the steam-content in a large-diameter free volume could be determined, to check the criterial formula. There are 7 figures.

ASSOCIATION: Moskovskiy energeticheskiy institut  
(Moscow Power Engineering Institute)

Card 2/2

TEVLIN, Ya.I. [Tevlin, IA.I.], starshiy vikladach.

Classes with manual training instruction and their role in the  
preparation of students for practical work. Nauk. zap. ChDPI  
11:51-61 '57. (MIRA 11:5)  
(Cherkassy—Technical education)

TEVLINA, A. S.

Chemical Abstracts  
Vol. 48 No. 5  
Mar. 10, 1954  
General and Physical Chemistry

<sup>4</sup>  
*chem*  
*(3)*  
~~Cation-exchanging resin sorbents. I. P. Losev, R. B. Trostyanikova, and A. S. Tevlina. Issledovaniya v Oblas-  
ti Khromatog., Trudy Vsesoyuz. Soveshchaniya Khromatog.,  
Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1950, 103-6  
(Pub. 1952).—A brief review of the sulfonic acid resins  
useful as ion exchange agents. 2 references. G. M. K~~

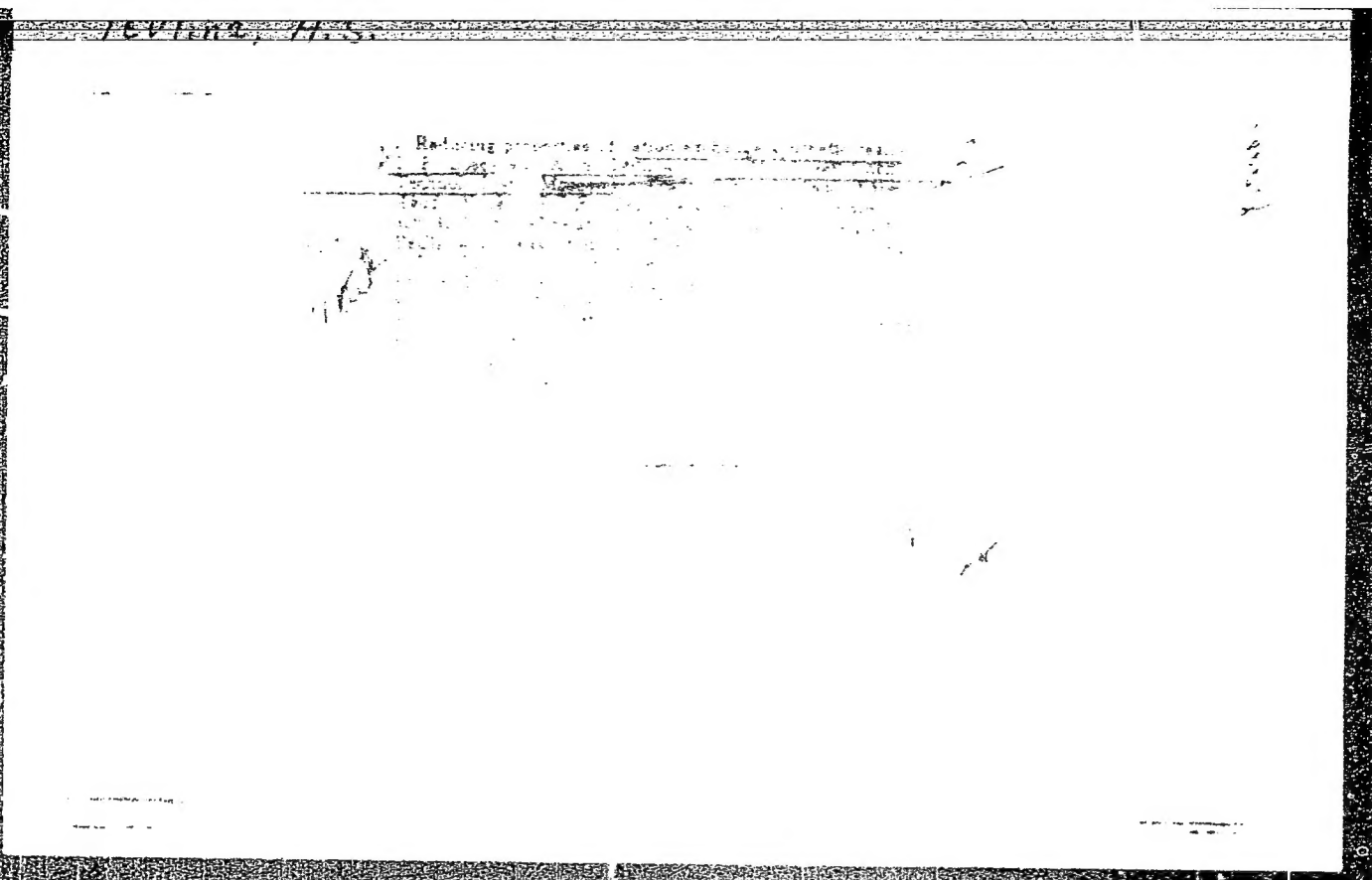
*114*  
*7-27-54*

DUBININ, M.M., akademik, otvetstvennyy redaktor; GAPON, Ye.N.; GAPON, T.B.;  
 ZHYPAKHINA, Ye.S.; RACHINSKIY, V.V.; BELEN'KAYA, I.M.; SHUVAEVA, G.M.;  
 ROGINSKIY, S.Z.; YANOVSKIY, N.I.; FUKS, N.A.; KISELEV, A.V.; NEYMARK, I.Ye.;  
 SLINYAKOVA, I.B.; KHATSET, F.I.; LOSEV, I.P.; TROSTYANSKAYA, Ye.B.;  
 TEVLINA, A.S.; DAVANKOV, A.B.; SALDAZH, K.M.; BRUMBERG, Ye.M.; ZHIDKOVA,  
 Z.V.; VEDENEVA, N.Ye.; NAPOL'SKIY, S.A.; MIKHAYLOVA, Ye.A.; KAZANSKIY, B.A.;  
 RYABCHIKOV, D.I.; SHERYAKIN, F.M.; KRETOVICH, V.L.; BUNDEL', A.A.; SAVINOV,  
 B.G.; VINDT, V.P.; EPSHTEYN, Ye.A.

[Research in the field of chromatography transactions of the All-Union  
 Conference on Chromatography, November 21-24, 1950] Issledovaniya v oblasti  
 khromatografii; trudy Vsesoiuznogo soveshchaniya po khromatografii, 21-24  
 noiabria 1950 g. Moskva, Izd-vo Akademii nauk SSSR, 1952. 225 p.  
 (MLA 6:5)

1. Akademiya nauk SSSR. Otdelenie khimicheskikh nauk.  
 (Chromatographic analysis)

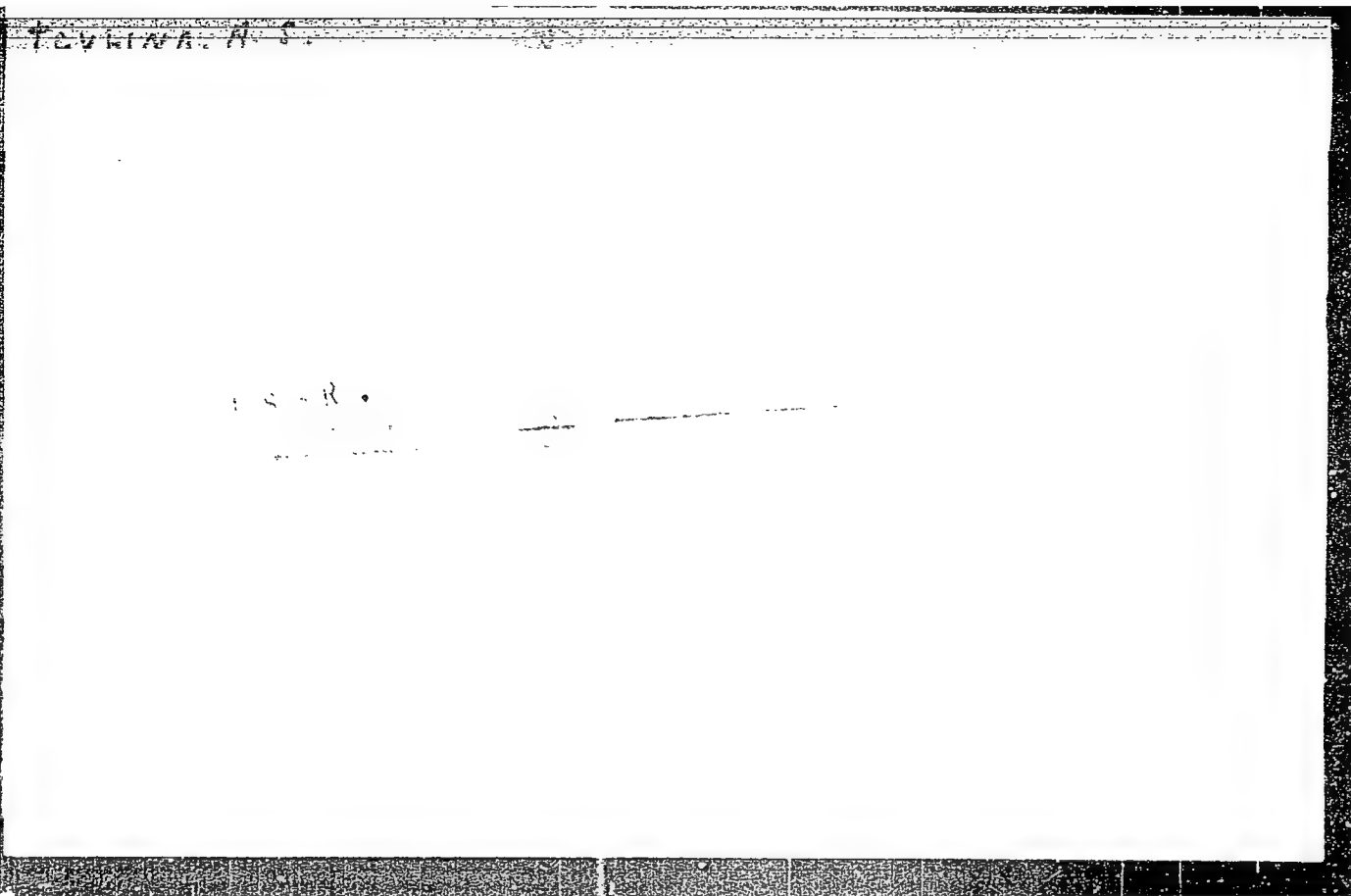




Subject : USSR/Chemistry AID P - 1372  
Card 1/1 Pub. 119 - 5/6  
Authors : Trostyanskaya, Ye. B., Losev, I. P., and Tevlina, A. S.,  
(Moscow)  
Title : Cation-exchange and electron-exchange resins  
Periodical : Usp. khim., 23, no. 1, 69-92, 1955  
Abstract : A review is given of the literature on cation- and  
electron-exchange resins and their preparation, with  
emphasis on work done by Russian chemists. Eight  
diagrams, 3 tables, 146 references (81 Russian;  
1903-53).  
Institution : None  
Submitted : No date

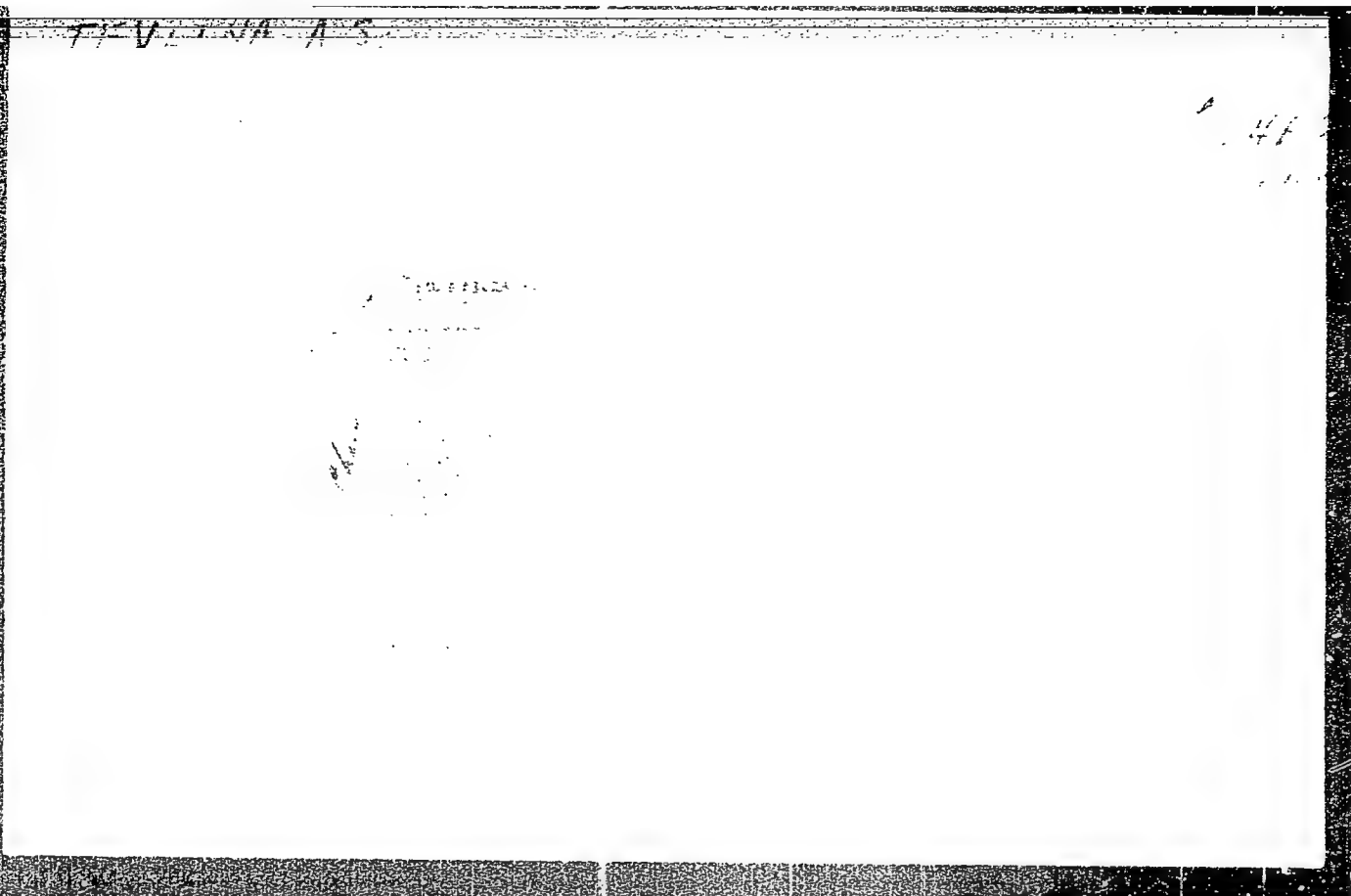
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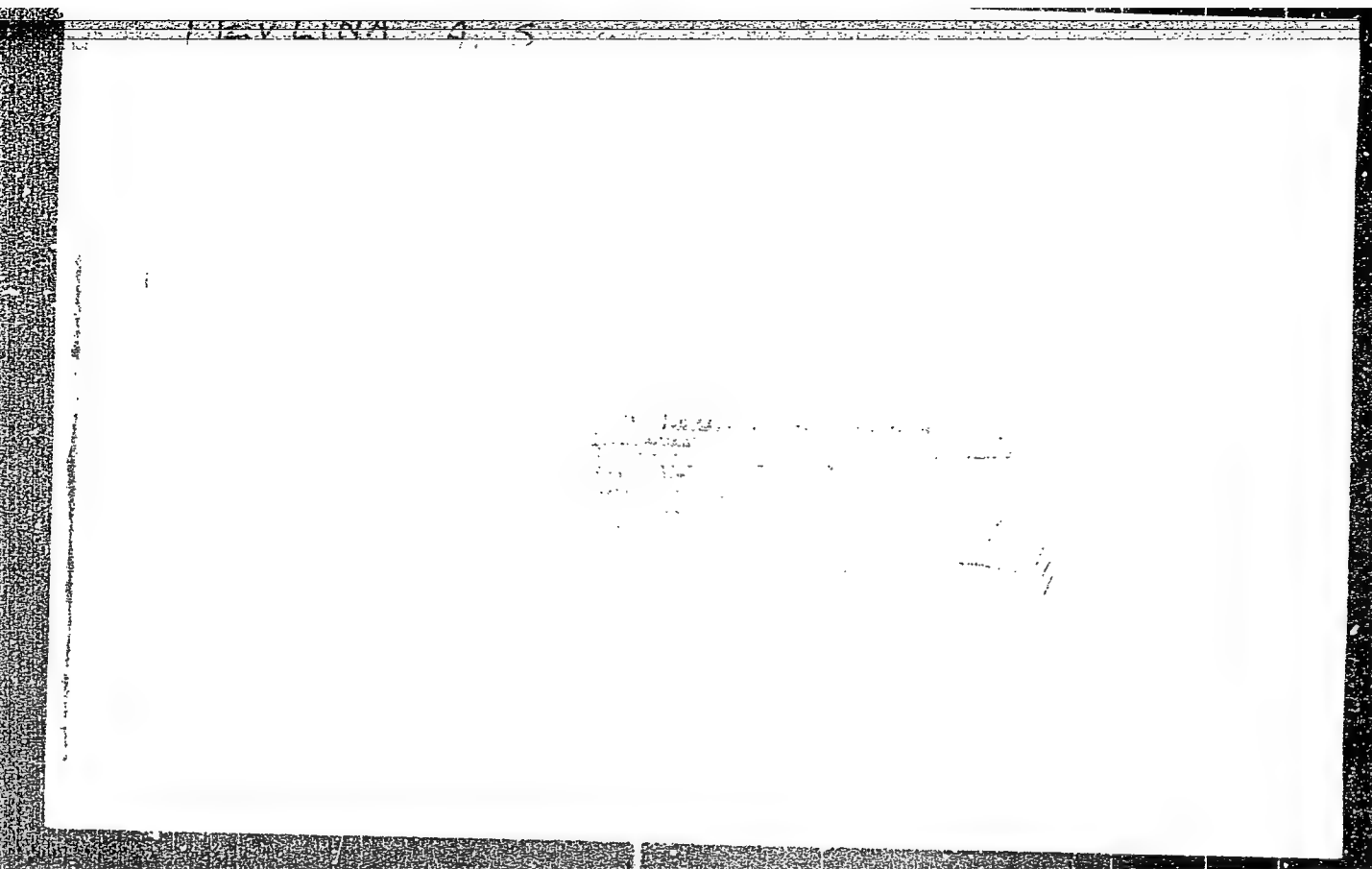
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TEVLINA, A.S.

AUTHORS: Trostyanskaya, Ye. B., Tevlina, A. S. 32-9-5/43

TITLE: Selective Ion Exchange Sorbents for the Chromatographical Analysis (Selektivnyye ionoobmennyye sorbenty dlya khromatograficheskogo analiza)

PERIODICAL: Zavodskaya laboratoriya, 1957, Vol. 23, Nr 9, pp. 1042-1049 (USSR)

ABSTRACT: Out of the highly acid cations, which in the USSR are produced for the chromatographical analysis, the types SDB, KU-2, SBS have proved to be the best. They all are products of a sulphation of the polymerides of styrole with any "arching component". Out of the highly basic anionites the sorbent EDE-10P has to be mentioned. It is shown that the synthesis of the ionite-sorbents, to the structure or composition of which the selective sorption is predestined, is the better method of ion exchange chromatography. This method offers infinite possibilities for the ionite synthesis, which are converted into a set of reagents of confined special determination. The selectivity can be obtained by modifying the permeability of the ionite or by choice of type and mutual position of the ions generating groups. The "ionite filters" for separation of the organic ions from the inorganic ones or for dividing organic ions, which differ by the height of their molecular weight have been applied more than all. Even more possibilities for producing selective ionites offers the synthesis of insoluble

Card 1/2

-Selective Ion Exchange Sorbents for the Chromatographical Analysis. 32-9-5/43

matters with different ions generating groups or with different mutual position of the groups. It has been ascertained that together with the lowering of the dissociation degree of the ions generating groups the difference of the bond solidity between the single ions of the solution and the ionite increases. For this reason here the sorbents were produced by synthesis with slightly acid groups. Here the characteristics of the selectivity of ionites has been written down in the form of tables, namely 1) those which were obtained by modification of the functional groups of the ionite and 2) those obtained by modification of the macro-molecular structure of the ionite. It is shown that the separation of the complicated electrolyte mixtures, which are contained in the solutions, can be obtained not only by careful choice of the filtering process, of the medium and "eluate"-composition, but also by a modification of the physical structure of the ionite or a mutual combination of the ion generating groups in it. There are 4 tables and 40 references, 12 of which are Slavic.

ASSOCIATION: Moscow Chemical-Technological Institute imeni D.I.Mendeleev  
(Moskovskiy khimiko-tekhnologicheskii institut im.D.I.Mendeleeva)

AVAILABLE: Library of Congress  
Card 2/2

AUTHORS: Trostyanskaya, Ye. B., Losev, I. P., <sup>SOV/74-27-9-3/5</sup> ~~Tevlina, A. S.~~ (Moscow)

TITLE: The Synthesis and Applications of the Polymer Electrolytes  
(Sintez polimernykh elektrolitov i ikh primeneniye)

PERIODICAL: Uspekhi khimii, 1988, Vol 57, No 1, pp 1024-1100 (USSR)

ABSTRACT: First, the authors point out that in the present paper only those basic trends of the synthesis of polymer electrolytes are given which in their earlier paper (Ref 1) and in some other publications (Refs 2-6) have not been taken into account. In chapter one the synthesis of the soluble polymer electrolytes is discussed (Refs 7-16). Various model systems are mentioned which are of special importance for the investigation of the behavior of polymer electrolytes. In chapter two the synthesis of insoluble polymer compounds in the form of fibers is mentioned (Refs 17-27). Chapter three only deals with the synthesis of insoluble polyelectrolytes in granular form (ionites) (Refs 28-53). The authors deal in detail with the new anionites produced by the chemical transformation of styrene copolymers with divinyl benzene (Refs 54-101). In chapter four the authors discuss the synthesis of insoluble polyelectrolytes in form of membranes and films (Refs 103-143).

Card 1/2



The Synthesis and Applications of the Polymer Electrolytes  
(Soviet publication) 1974-27-9-3/5

The methods of the synthesis of highly elastic homogeneous films (Ref 138) are of special interest. The use of hetero-dialysis is discussed. Finally the authors mention that they succeeded in producing elastic and resistive films using rubber and rubber-like elasticity gages. There are 5 figures, 4 tables, and 143 references, 47 of which are Soviet.

Cara 2/2

5.3831

5 (3), 5 (1)

AUTHORS:

Trostyanetsky, Ye. G.,  
Makarova, S. B., Tevlina, A. S.

U/C66/59/000/07/006/035  
B005/B123

TITLE:

Chloromethylation of <sup>16</sup>Copolymers of Vinylaromatic Compounds

PERIODICAL:

Khimicheskaya promyshlennost', 1959, Nr 7, pp 577 - 580 (USSR)

ABSTRACT:

In the introduction to the present paper the authors discuss some methods described in publications of the chloromethylation of polymers and copolymers in styrene (Refs 5-10). In all these methods chloromethyl ether or dichloromethyl ether were used as reagents. The use of these reagents in industrial syntheses is not advisable as they are very volatile and produce poisonous vapors. The authors investigated the conditions under which the Blanc reaction can be applied to a chloromethylation of various copolymers in vinyl-aromatic compounds. In the Blanc reaction formaldehyde and hydrochloric acid are used as reagents instead of chloromethyl ether. Ordinary zinc chloride usually serves as catalyst. When applying this reaction to the chloromethylation of copolymers of styrene, however, intermolecular secondary reactions are caused by the great mobility of the chlorine atom in the chloromethyl group, that lead to a cross-linking of the

Card 1/3

Chloromethylation of Copolymers of Vinylaromatic  
Compounds

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BC05/B123

polymer. The authors found out that the degree of cross-linking during the chloromethylation of linear copolymers of styrene is reduced with an increasing amount of aliphatic residues (that cannot be chloromethylized). Table 1 shows the results of chloromethylation of copolymers in styrene with 1,3-butadienes depending on the number of styrene molecules in the polymer. In further experiments the Blanc reaction was applied to the chloromethylation of three copolymers of styrene with various degrees of cross-linking (diene components: divinylbenzene, diallyl maleate, ethylene glycol-dimethacrylate). Table 2 and figure 1 show the results obtained (influence of the diolefin structure upon the degree of chloromethylation and the period of reaction. The content of chlorine in the copolymers, after a certain period of chloromethylation (in all cases investigated 8-10 hours), reaches a maximum and then declines again. Of the three polymers investigated the copolymer of styrene with diallyl maleate showed the maximum chloromethylation under the same conditions. Table 3 shows the influence of catalysts upon the degree of chloromethylation.  $ZnCl_2$ ,  $SnCl_2$ , and  $SnCl_4$  increase the yield

Card 2/3

Chloromethylation of Copolymers of Vinylaromatic  
Compounds

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B005/B123

of chloromethylation to the same extent. If the catalyst exceeds 75% of weight of the styrene compounds in the copolymer, the yield is not increased (Fig 2). The authors applied the Blanc reaction also to the chloromethylation of cross-linked copolymers containing condensed aromatic rings. The chloromethylated products of various copolymers of styrene and vinyl-naphthalene were used for the production of insoluble quaternary ammonium bases that are important as anion-exchange resins. These quaternary ammonium bases have a swelling capacity in water that differs with the structure of the original copolymer. Thus it becomes possible to apply the chromatographic method of "ion-sieves", that up to now has only been used for separating cations, to the separation of anions as well. Table 4 shows the most important characteristics of the strongly basic "anion-sieves" obtained by the authors. There are 3 figures, 4 tables, and 11 references, 5 of which are Soviet.

ASSOCIATION:

Moskovskiy khimiko-tekhnologicheskii institut imeni  
D. I. Mendeleyeva (Moscow Institute of Chemical Technology  
imeni D. I. Mendeleyev)

Card 3/3

TEYLINA, A.S.

SOV/4984

PHASE I BOOK EXPLOITATION

International symposium on macromolecular chemistry. Moscow, 1960.

Mezhdunarodnyy simpozium po makromolekulyarnoy khimii SSSR, Moskva, 14-18 iyunya 1960 g.; doklady i avtoreferaty. Sektsiya III. (International Symposium on Macromolecular Chemistry Held in Moscow, June 14-18, 1960; Papers and Summaries) Section III. [Moscow, Izd-vo AN SSSR, 1960] 469 p. 55,000 copies printed.

Tech. Ed.: P. S. Kashina.

Sponsoring Agency: The International Union of Pure and Applied Chemistry. Commission on Macromolecular Chemistry.

PURPOSE: This book is intended for chemists interested in polymerization reactions and the synthesis of high molecular compounds.

COVERAGE: This is Section III of a multivolume work containing papers on macromolecular chemistry. The articles in general deal with the kinetics of polymerization reactions, the synthesis of special-purpose polymers, e.g., ion exchange resins, semiconductor materials, etc., methods of obtaining polymers, polymerization reactions, properties and chemical interactions of high molecular materials, and the effects of various factors on polymerization and the degradation of high molecular compounds. No personalities are mentioned. References given follow the articles.

Kabek, T. I., and J. Kschinder (Poland). Chlorination of Phenol-Formaldehyde Resins	27
Alexandru, L., M. Coris, and A. Ciocanel (Romania). Cyanoethyl and Aminoethyl Ethers of Polyvinyl Alcohol	34
Yakubovich, A. Ya., G. Ya. Gordin, E. I. Maslennikova, Ye. M. Gribanov, K. I. Terterkova, and N. K. Mokrova (USSR). Study of the Chemical Conversions of Polycarbonates	44
Peradzin, B. A., M. S. Fed'kova, and E. N. Pelyuzanskaya (USSR). Chemical Interaction and Mechanism of the Activating Action of Double Systems of Vulcanization Accelerators	65
Pinguis, I. M., A. P. Vorob'yeva, G. A. Shirokova, and M. P. Okunshchikova (USSR). Esters of Sulfuric Acid and Polyvinyl Alcohol	73
Molkeber, Z., T. Holly, and G. Thurzó (Hungary). The Interaction of Aromatic Amines and Polyvinyl Chloride	79
Gerdarich, M. A., B. E. Davydov, B. A. Kentshal', I. M. Nuzhennich, L. S. Polak, A. V. Topchil'yev, and R. M. Voznenko (USSR). The Production of Polymeric Materials Which Exhibit Semiconductor Properties	85
Klase, J. A., and L. I. Kovács (Hungary). Chemical Properties of Bipolar Ion-Exchange Resins	93
Kabek, T. I., and J. Kschinder (Poland). Effect of the Structure of Organic Amino Compounds on the Properties of Anion Exchange Resins From Polystyrene	102
Saldadit, K. M. (USSR). The Problem of the Effect of the Structure of Ions on Ion-Exchange Processes Between Ionites and Electrolyte Solutions	107
Berlin, A. A., B. I. Litson'kii, and V. P. Parini (USSR). Production and Properties of Some Aromatic Polymers	115
Prostyanskaya, Ye. V., I. P. Losev, A. S. Teylina, S. B. Bekasova, G. Z. Nefedova, and Ia Reien-Jao (USSR). Chemical Conversions of Insoluble Copolymers of Styrene	124
Lindemann, J. (Poland). Thermal Stability of Strongly Basic Anion Exchange Resins	146 40

S/190/60/002/009/016/019  
B004/B060

AUTHORS: Tröstyanskaya, Ye. B., Tevlina, A. S., Losev, I. P.

TITLE: The Problem of the Polymerization of Monomers in Swelling Copolymers

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 9, pp. 1413-1418 ✓

TEXT: The authors wanted to synthesize vitreous polyelectrolytes with high concentration of ionogenic groups. The following were polymerized: 1) Vinyl sulfonic acid or methacrylic acid in granules of the ion exchanger CAB(SDV), a copolymer made of styrene and divinyl benzene, in which sulfo groups were introduced during a four-hour treatment with sulfuric acid at 80°C in the presence of  $AlCl_3$ ; 2) 2-methyl-5-vinyl pyridine in granules of the ion exchanger ACD(ASD), the same copolymer that was chloromethylated by means of paraformaldehyde and hydrochloric acid in the presence of zinc chloride, and whose chlorine atoms were then substituted at 40-60°C (10 h) by triethanol amine, pyridine, or trimethyl amine. The

Card 1/3

The Problem of the Polymerization of Monomers in Swelling Copolymers S/190/60/002/009/016/019  
B004/B060.

granules of the copolymer were swelled in the dissolved monomer, the excess solvent was removed, and polymerization was carried out during 4 h at room temperature, and 8 h at 55-85°C in sealed ampuls. After polymerization the granules were extracted with alkalies, acids, or organic solvents. Table 1 specifies the increase in grain size and weight of the granules, Table 2 the content of ionogenic groups, Table 3 the variation in the sulfur and nitrogen content, change of the acid number or amine number, and variation in the swelling capability. A figure shows the curve of potentiometric titration of insoluble polymeric acids and bases. Table 4 gives the reproducibility of the polymerization process. With a view to clarifying whether the ionogenic groups of the copolymers bear an influence on polymerization, copolymerization was carried out in  $ZnSO_4$  or  $Na_2SO_4$  treated films made of polyvinyl alcohol with sodium methacrylate or methyl vinyl pyridine hydrochloride. Also in this case, where an interaction between the functional groups of the polymer and copolymer was missing, a stable, swelling system was formed. The authors assume that the monomer is polymerized in the copolymer by grafting. There are 1 figure, 4 tables, and 7 references: 2 Soviet, 4 US, and 1 German.

Card 2/3

The Problem of the Polymerization of Monomers in Swelling Copolymers S/190/60/002/009/016/019  
B004/B060

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleeva  
(Moscow Institute of Chemistry and Technology imeni D. I. Mendeleev)

SUBMITTED: April 19, 1960

Card 3/3



S/075/60/015/004/005/030/XX  
B020/B064

AUTHORS: Trostyanskaya, Ye. B. and Tevlina, A. S.

TITLE: Electron Exchanging Insoluble Polymers 1

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 4,  
pp. 402 - 404

TEXT: In the introduction, the authors give a short survey of the redox reactions obtained in analytical chemistry by means of electron exchangers. Electron exchanging resins are synthesized by copolymerization of vinyl hydroquinone and styrene or vinyl pyridine, or by copolycondensation of hydroquinone and phenol with formaldehyde. The electron exchange is due to the reversible transition of the hydroquinone structure in the macromolecule to the quinoid structure. The electron exchangers suggested possess, however, a lower mechanical strength and chemical stability, and in addition to this, their capability of electron exchange decreases after several oxidation and reduction cycles. It has previously been suggested to prepare electron exchangers introducing sulfohydryl groups in styrene- and divinyl benzene copolymers. The authors examined the

Card 1/3

Electron Exchanging Insoluble Polymers

S/075/60/015/004/005/030/XX  
B020/B064

methods of preparing sulfohydryl copolymers, determined the most favorable conditions for this reaction, as well as the properties of the thiol copolymers. The initial products were chloromethylated copolymers of styrene and divinyl benzene (SD), or of diallyl maleate (SAM). Copolymerization was carried out on grains having a diameter of 0.25 to 0.5 mm; the grains were caused to swell in dichloro ethane and then chloromethylated by simultaneous action of paraform and hydrogen chloride in the presence of  $ZnCl_2$ . The chloromethylated copolymer SD contains 14%

chlorine and the chloromethylated copolymer SAM 16% chlorine. The substitution of the chlorine atoms in the copolymers by sulfohydryl groups can be carried out by the action of  $Na_2S$  or thiourea and subsequent

saponification with lye. In the reaction with thiourea, which is more effective, the copolymer contains 11% sulfur and its acid number, determined with  $NaOH$ , is 156 mg/g; the entire sulfur forms thionyl groups in the copolymer. The copolymers swell slightly in water (18-20%) and retain their vitreous state and the strength characteristic of the initial copolymers. A figure shows the results of experiments on the reduction capacity of styrene- and divinyl benzene thiol copolymers, as well as of

Card 2/3

Electron Exchanging Insoluble Polymers

S/075/60/015/004/005/030/XX  
B020/B064

styrene- and diallyl maleate thiol copolymers on  $\text{Fe}^{3+}$ , and the reproducibility of this capacity after displacement of the adsorbed ions and reduction of the polymer. The last-mentioned procedure is based on the washing of the column with a 10% sodium hydrosulfite solution, i.e., with a volume 15 times as high as that of the thiol copolymer in the column. The total reduction capacity of the copolymer SD for the iron ion is 380.8 mg, and that of the copolymer SAM, 392 mg/g. On the basis of the results obtained it may be assumed that the majority of sulfhydryl groups in the copolymer oxidize and form sulfinic acid groups entering into an ion exchange reaction with part of the reduced cations. The sulfhydryl copolymers reduce 80 mg/g  $\text{Cu}^+$  from a  $\text{CuCl}_2$  solution and 150 mg/g metallic silver from a silver salt solution. There are 1 figure and 9 references: 3 Soviet, 2 German, 3 US, and 1 British. ✓

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: May 5, 1949 [Abstracter's note: Presumably 1959]

Card 3/3

87134

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2209, 1273, 1274

S/075/60/015/006/006/018  
B020/B066

AUTHORS: Trostyanskaya, Ye. B. and Tevlina, A. S.

TITLE: Characteristics of Ionite Membranes

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 6,  
pp. 681-685

TEXT: Investigations of the properties of ionite membranes had been previously carried out by Ye. A. Materova and F. A. Belinskaya (Ref. 11) as well as by V. S. Titov (Ref. 12). In addition to these papers, the authors compared the ion-exchange properties of ionites and the electrical resistivity of membranes made of them. The method described in Refs. 9 and 13 for the production of heterogeneous membranes was applied. The highest mechanical, chemical, and thermal stability of heterogeneous membranes is obtained by using rubber, especially chloroprene- or carboxylate copolymers of butadiene and styrene as binders. The ionite content in the membrane was 70%. In order to compare the influence of the type of ionogenic groups upon the ion-exchange properties and electrical conductivity of membranes, ionites with equal macromolecular structure

Card 1/3

87134

Characteristics of Ionite Membranes

S/075/60/015/006/006/018  
B020/B066

must be selected. For this reason, a styrene-divinyl benzene copolymer was chosen, from which the following ionites were synthesized: cationite CAB(SDV), cationite CΦ(SF), cationite KC(KS), anionite ACD-B(ASD-v), and anionite ACD-C(ASD-s) with the same macromolecular structure, but different ionogenic groups. The properties of these ionites are described (Table 1). To characterize the ionization degree of ionites at different pH, the results of potentiometric titration of the cationites SDV, SF, CEC-1 (SBS-1), and KS are given in Fig. 1, and those of the anionites ASD-v, ASD-s, and ЭДЭ-10П (EDE-10P) in Fig. 2. The production of ionite films is described, and their properties are given (Table 2). A comparison of the electrical resistivity of films from SBS-1, SBS-2, and SDV shows that the electrical conductivity of the film is dependent on the concentration of ionogenic groups and its swelling capacity; but this dependence is not specific, and is determined, to a considerable extent, by the structure of macromolecules of the ionite selected. A comparison of properties of the films П-СЕС-2 (P-SBS-2) and П-СДВ (P-SDV) discloses that the dielectric permeability of the membrane may be further increased by changing the structure of the ionite. The dependence of the internal resistivity of ionite films on the degree of

Card 2/3

87134

Characteristics of Ionite Membranes

S/075/60/015/006/006/018  
B020/B066

ionization of ionogenic groups is investigated, which is simple at equal structures of the ionite, but when studying ionites of different structures the resultant proportionality of this dependence is frequently violated. N. V. Anashkina and V. M. Vinogradova are mentioned. There are 2 figures, 2 tables, and 14 references: 10 Soviet, 1 German, and 3 US.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleyeva  
(Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: May 5, 1959

X

Card 3/3

88726

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S/190/61/003/001/006/020  
B119/B216

AUTHORS: Trostyanskaya, Ye. B., Lu Syan'-zhao, Tevlina, A. S.,  
Losev, I. P.

TITLE: Phosphorylation of insoluble polymers

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 1, 1961, 41-45

TEXT: The phosphorylation of polymers, according to data given in the chemical literature, results in increased heat resistance and altered softening point and solubility. The polymers acquire the properties of polyelectrolytes. The present work aims at establishing optimum conditions for the phosphorylation of insoluble polymers containing aromatic and chloro-alkyl groups. Phosphorylation was carried out on copolymers of styrene and divinyl benzene (A) and on a chloromethylated copolymer of styrene and divinyl benzene (B) (both in granular form). The polymers were maximally swelled in  $\text{PCl}_3$  and then heated to boiling point after addition of dry  $\text{AlCl}_3$ . The highest degree of phosphorylation in the case of A, i.e. 93% (calculated for initial polymer), was attained

Card 1/3

88726

## Phosphorylation of insoluble polymers

S/190/61/003/001/006/020  
B119/B216

by swelling (180%) at 70 - 75°C for 10 hr reaction time in presence of 2 AlCl<sub>3</sub> to each styrene unit. The product obtained was hydrolyzed by washing with water. Potentiometric titration of the hydrolyzate with NaOH yielded an acid number of 5.5 mg eq/g. The shape of the curve indicates a weak monobasic acid (accordingly, the P content of the copolymer was 17.1%). The polymeric phosphinous acid was oxidized by treatment with 25% nitric acid at 60°C for 8 hr. 10.2 mg eq/g NaOH were used up in the potentiometric titration of the product. This poly-electrolyte was designated as ionite C $\Psi$ -1 (SF-1). The shape of the curve reflects a dibasic acid. In all, 92.7% of the polymeric phosphinous acid was oxidized to phosphinic acid. (The former swells 20% in water, 40% in 0.3 N HCl, 160% in 0.3 N NaOH and the latter 135% in water, 85% in 0.3 N HCl and 210% in 0.3 N NaOH). Phosphorylation of B under the same conditions yielded a reaction product containing 11.95% P corresponding to a 79% transformation. In 0.3 N HCl the hydrolyzate swelled up to 45%, and up to 110% in 0.3 N NaOH. The acid number was 6.2 mg eq/g, corresponding to 79% phosphinic acid (with respect to the monomeric vinyl benzyl chloride units in which an H atom is substituted

Card 2/3



88726

Phosphorylation of insoluble polymers

S/190/61/003/001/006/020  
B119/B216

by reaction with  $\text{PCl}_3$ ) and 57% phosphinous acid (with respect to monomeric styrene units in which one of the H atoms of the aromatic nucleus is substituted). After nitric-acid oxidation the acid number increased to 7.5 mg eq/g denoting quantitative transformation of the phosphinous acid groups. This polyelectrolyte was designated as ionite C $\Phi$ -2 (SF-2). The product swells up to 50% in water, 50% in 0.3 N HCl, 120% in 0.3 N NaOH. The dissociation constants of the polymeric acids obtained were calculated from the potentiometric titration data:  $\text{pK}_1$  is 3.4 for SF-1 and 4.9 for SF-2;  $\text{pK}_2$  is -7.1 for SF-1 and -8.0 for SF-2. There are 3 figures and 17 references: 9 Soviet-bloc and 7 non-Soviet-bloc.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: May 27, 1960

Card 3/3

TROSTYANSKAYA, Ye.B.; MAKÁROVA, S.B.; TEVLINA, A.S.

Insoluble polymeric quaternary ammonium bases. Vysokom.soed. 3  
no.9:1358-1363 S '61. (MIRA 14:9)

1. Moskovskiy khimiko-tekhnologicheskoy institut imeni D.I.Mendel-  
eyevea.

(Amination) (Polymers)

TROSTYANSKAYA, Ye.B.; TEVLINA, A.S.; BESSONOVA, L.V.

Using ion exchangers for a simultaneous extraction of cations and anions from solutions. Plast.massy no.11:15-16 '61.

(Ion exchange resins)

(MIRA 14:10)

VERKHOVSKAYA, Z.N.; VYSTAVKINA, L.B.; KLIMENKO, M.Ya.; TEVLINA, A.S.;  
TROSTYANSKAYA, Ye.B.

Coarse-grained ion exchangers as catalysts of the hydration  
of olefins and dehydration of alcohols. Khim.prom. no.4:248-  
250 Ap '62. (MIRA 15:5)  
(Ion exchange resins) (Hydration) (Dehydration (Chemistry))

S/190/63/005/001/006/020  
B117/B186

AUTHORS: Trostyanskaya, Ye. B., Tevlina, A. S.  
TITLE: Synthesis of ion exchange films by graft copolymerization  
PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 1, 1963, 44-48

TEXT: An improved method of producing high-elastic ion exchange films with limited swelling, in which the polyelectrolyte is distributed as a fine powder in the apolar elastomer, is described. This method is based on a proper choice of the system film + monomer (+ solvent) so as to guarantee maximum swelling in the monomer or its solution. Methacrylic acid, vinyl sulfonic acid, and 2-methyl-5-vinyl pyridine were used as monomers. Limitedly swelling films (100-200%) were produced from polyvinyl alcohol with reticular structure. These films become high-elastic and solid after treatment (12 hrs, 45-50°C) with an aqueous solution of glyoxal (3%), Na<sub>2</sub>SO<sub>4</sub> (20%), and H<sub>2</sub>SO<sub>4</sub> (10%). For graft copolymerization, peroxide or hydroperoxide were added to the aqueous monomer solution. 25-33.6% by weight of polymer was grafted, corresponding to a concentration of 1.79-4.1 mg·eq/g ionogenic groups. The concentration of such groups

Card 1/2

✓

Synthesis of ion exchange films ...

S/190/63/005/001/006/020  
B117/B186

can be increased by 25-28% by repeated graft copolymerization under the same conditions. Although the graft copolymerization is always accompanied by homopolymerization of the monomer, the yield of homopolymer was only 17-20%. By grafting polymeric acids, the films remained outwardly unchanged but lost some of their elasticity. Grafting of polymethyl vinyl pyridine made the films dull but more elastic. The reduction of swelling in water, observed after grafting, was explained by formation of additional crosslinks between macromolecules of polyvinyl alcohol. With respect to electrical conductivity and transference number, the films obtained exceed the heterogeneous ion exchange films applicable in electric ion exchange apparatus. There are 3 figures and 3 tables. ✓

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: July 14, 1961

Card 2/2

ACCESSION NR: AT4042424

S/0000/63/000/000/0068/0070

AUTHOR: Tevlina, A. S., Lindeman, Ya. S., Losev, I. P.

TITLE: Synthesis and investigation of ion exchange membranes based on polystyrenesulfonic acid and polyvinyl alcohol

SOURCE: Respublikanskoye nauchno-tekhnicheskoye soveshchaniye po ionnomu obмену. Alma-Ata, 1962. Teoriya i praktika ionnogo obmena (Theory and practice of ion exchange); trudy\*, soveshchaniya. Alma-Ata, Izd-vo An KazSSR, 1963, 68-70.

TOPIC TAGS: ion exchange resin, ion exchange membrane, copolymer film, polystyrene sulfonic acid, sulfuration, polyvinyl alcohol, polymer film swelling, polymer film electrical property

ABSTRACT: The authors prepared homogeneous ion exchange membranes by combining polystyrenesulfonic acid (sulfurated to 94% of theoretical capacity) with a calculated amount of polyvinyl alcohol, drying thin layers of the poured solution at room temperature and heating the films at 120C for two hours in a thermostat. The coefficient of swelling and electrical resistivity of the films were found to decrease with an increase in the proportion

Card 1/2

ACCESSION NR: AT4042424

of polystyrenesulfonic acid in the film. A spectral analysis of the materials showed a generally identical pattern for polyvinyl alcohol and polystyrenesulfonic acid and a somewhat different pattern for the films. The firm union between the polyelectrolyte and the polyvinyl alcohol is thought to be linked with a new bond between  $\text{SO}_3\text{H}$  groups of the former and OH groups of the latter. To prepare the sulfonic acid used in the study, polystyrene having molecular weights of 30000, 12000, 10000 and 4000 was reacted with  $\text{SO}_3$  in a solution of dichloroethane. Orig. art. has: 2 tables and 1 chemical equation.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleyeva  
(Moscow Institute of Chemistry and Technology)

SUBMITTED: 13Nov63

ENCL: 00

SUB CODE: OC

NO REF SOV: 000

OTHER: 000

Card 2/2



ACCESSION NR: AT4042425

S/0000/63/000/000/0071/0074

AUTHOR: Tevlina, A. S., Kotlyarova, S. V., Losev, I. P.

TITLE: Homogeneous ion exchange membranes based on grafted polyethylene copolymers

SOURCE: Respublikanstoye nauchno-tekhnicheskoye soveshchaniye po ionnomu obmemu. Alma-Ata, 1962. Teoriya i praktika ionnogo obmena (Theory and practice of ion exchange); trudy\* soveshchaniya. Alma-Ata, Izd-vo AN KazSSR, 1963, 71-74

TOPIC TAGS: ion exchange resin, ion exchange membrane, polyethylene, grafted copolymer, polyethylene copolymer, polystyrene copolymer, divinylbenzene copolymer, polymer film, vinylphosphinic acid copolymer

ABSTRACT: A product with up to 75% polystyrene was obtained by the method of styrene-to-polyethylene copolymerization in the presence of peroxide or hydroperoxide initiators, used in the synthesis of homogeneous polyethylene membranes. The three stages of the process — swelling of the polyethylene in the styrene monomer, polymerization of the styrene in the film, and sulfurization — were investigated with respect to temperature and duration, and the physico-mechanical characteristics of the films were examined. To

Card 1/2

ACCESSION NR: AT4042425

enhance the mechanical properties and thermal resistance, 3% divinylbenzene was added to the reactants. By sulfurizing, phosphorylating or chloromethylating with subsequent substitution of amino radicals in the grafted polyethylene film, cation and anion exchange membranes were prepared with good physical-chemical properties, low electrical resistance and high selectivity. In separate studies, the feasibility of grafting polymerization of the di- $\beta$ ,  $\beta'$ -chloroethyl ester of vinylphosphinic acid to a polyethylene film (10 hrs. at 55C followed by saponification) was established. Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleeva  
(Moscow Institute of Chemistry and Technology)

SUBMITTED: 13Nov63

ENCL: '00

SUB CODE: OC

NO REF SOV: 002

OTHER: 000

Card 2/2

TROSTYANSKAYA, Ye.B.; TEVLINA, A.S.; NAUMOVA, F.A.

Suspension copolymerization of styrene with divinylbenzene in  
the presence of telogen. Vysokom.soed. 5 no.8:1240-1244 Ag  
'63. (MIRA 16:9)  
(Styrene) (Benzene) (Polymerization)

TEVLINA, A.S.; TROSTYANSKAYA, Ye.B.

Synthesis of soluble polyelectrolytes by sulfonation of polystyrene.  
Vysokom.soed. 5 no.8:1178-1182 Ag '63. (MIRA 16:9)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni  
D.I.Mendeleyeva.

(Styrene polymers) (Sulfonation) (Electrolytes)

1. 1977

ACCESSION NR. AF401000

AUTHOR: Tikhonov, A. A. *Khimicheskiye svoystva i modifikatsiya polymerov* (Chemical properties and the modification of polymers), sbornik statey, Moscow, Izdat. Khim., 1976, 149 p.

TITLE: Homogeneous ion exchange membranes based on grafted copolymers of polyethylene

SOURCE: *Khimicheskiye svoystva i modifikatsiya polymerov* (Chemical properties and the modification of polymers), sbornik statey, Moscow, Izdat. Khim., 1976, 149 p.

TOPIC TAGS: polyethylene; copolymers; grafted; ion exchange; membranes; chloromethane; chloromethane; chloromethane

ABSTRACT: The graft copolymerization of styrene onto polyethylene was accomplished in the presence of peroxide catalysts. The graft copolymers were characterized by their composition, molecular weight, and degree of grafting. The graft copolymers were used for the preparation of homogeneous ion exchange membranes. The membranes were characterized by their ion exchange capacity, water uptake, and mechanical properties. The membranes were used for the separation of metal ions. The membranes were found to be effective for the separation of metal ions. The membranes were found to be effective for the separation of metal ions.

1. 3

L 19757-65

ACCESSION NR: AT4049858

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiv institut (m. D. I. Mendeleyeva  
(Moscow Chemical-Technological Institute)

SUBMITTED: 20Nov62

ENCL: 01

SUB CODE: MT, OC

NO REF SOV: 003

OTHER: 000

Card 2/3

L 19757-

ACCESSION NR: AT4049858

ENCLOSURE: 01

Table 1. Physical properties of the ion exchange membranes obtained  
by sulfonation of the phosphoric acid esters of the polyphosphoric acid  
in the presence of a catalyst (phosphoric acid) at 120-140°C.

	Thermal stability (°C)	Coeff. of swelling	Surface resis- tance (ohm cm <sup>2</sup> )	Selectivity (transfer number)	Acid No. or basi- city (mmole/g)	Tensile strength (kg/cm <sup>2</sup> )	Relative elongation (%)
(a)	120	1.0*	4.2	0.94	2.7	140	30
(b)	140	1.15	1.5	0.97	4.7	127	29
(c)	---	1.10	0.3	0.97	2.1	140	38

Card 3/3

ACCESSION NR: AP4039941

8/0191/64/000/006/0010/0012

AUTHOR: Tevlina, A. S.; Lindeman, Ya. S.; Losev, I. P. (Deceased)

TITLE: Synthesis and investigation of ionite membranes based on polystyrene sulfonic acid and polyvinylalcohol

SOURCE: Plasticheskiye massy\*, no. 6, 1964, 10-12

TOPIC TAGS: ionite, ionite membrane, synthesis, polystyrenesulfonic acid polyvinylalcohol mixture, polystyrene sulfonation, water resistance, IR spectra, water desalting

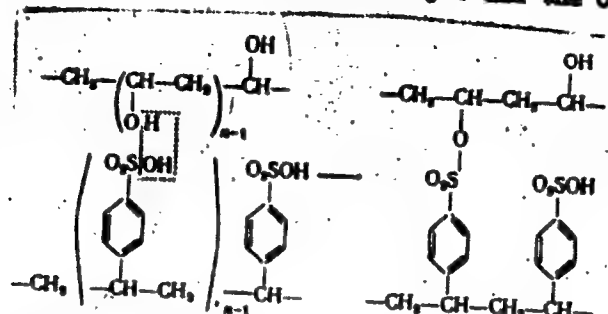
ABSTRACT: The possibility of obtaining ionite membranes (suitable for instance for electrochemical desalting of water) by combining up to 60 mol% of water soluble polystyrenesulfonic acid (PSSA) with polyvinylalcohol (PVA) was established. Polystyrene was sulfonated with  $\text{SO}_3$  in dichlorethane solution; a relatively low molecular weight polystyrene was used since the degree of sulfonation increases with decrease in molecular weight. A homogeneous solution of the PSSA and PVA was prepared and cast to form a film which was dried at 120C for 2 hours. The water resistance of the product membrane is explained by the formation of a chemical

Card 1/3



ACCESSION NR: AP4039941

bond between the  $\text{SO}_3\text{H}$  group of the polyelectrolyte and the OH of the PVA:



The IR spectra of PVA, PSSA and of the product are shown. The  $1650\text{ cm}^{-1}$  band (free OH group) seen in the spectra of PVA and PSSA is absent in the membrane spectrum. This is explained by the possible hydrogen bond formation between the  $\text{SO}_3\text{H}$  and OH groups or other bonds between the PVA hydroxyl groups. The low intensity of the  $1740\text{ cm}^{-1}$  band in the PVA spectrum indicated the absence of acetyl groups. Orig. art. has: 3 figures, 1 formula and 3 tables.

Cord 2/3

ACCESSION NR: AP403994.1

ASSOCIATION: None

SUBMITTED: 00

SUB CODE: 00, MT

NO REF SOV: 003

ENCL: 00

OTHER: 003

Card 3/3

ACCESSION NR: AP4042193

S/0190/64/006/007/1327/1329

AUTHOR: Tevlina, A. S., Kotlyarova, S. V., Agapova, E. P.

TITLE: Phosphorylation of the grafted copolymer of polypropylene and polystyrene

SOURCE: Vy\*sokomolekulyarny\*ye soyedineniya, v. 6, no. 7, 1964, 1327-1329

TOPIC TAGS: grafting, grafted copolymer, ion exchange membrane, phosphorylation, polystyrene, polypropylene, polypropylene polystyrene copolymer, polymer film, polymer electrical property, phosphorus trichloride

ABSTRACT: Preliminary studies showed that ion-exchange membranes can be obtained by grafting polystyrene on polypropylene and the subsequent phosphorylation of the polystyrene side-chains. The mechanism of grafted copolymerization was then studied in the presence of initiators such as benzoyl peroxide in order to establish the optimal reaction conditions for obtaining a more uniform distribution of grafted polystyrene chains in the film. Grafting was carried out at the site of tertiary carbon atoms. The best polymer for grafting was found to be polypropylene, with an initial film thickness of 90-95 $\mu$ , specific gravity = 0.90,  $M_v$  = 3.1, tensile strength = 350 kg/cm<sup>2</sup>, elongation at break 390%, and melting point 164-168C..

1/2

Card

ACCESSION NR: AP4042193

The reaction conditions are described. Tabulated data concerning the correlation between the degree of phosphorylation and the reaction time show that the best results were obtained by phosphorylation with  $\text{PCl}_3$  and  $\text{AlCl}_3$  for 12 hours at 65C. The electrochemical properties of the ion-exchange membranes formed were improved by oxidation of the phosphinous acid groups to phosphinic acid groups. Ion-exchange films subjected to oxidation had not only a higher acid number but also a lower electrical resistance. The best electrochemical properties were shown by membranes containing 5% phosphorus. Orig. art. has: 2 tables and 1 chemical equation.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleeva  
(Moscow Institute of Chemical Technology)

SUBMITTED: 10Sep63

SUB CODE: OC

NO REF SOV: 003

ENCL: 00

OTHER: 000

Card 2/2

AP4049159 FWT(m)/EWP(j)/T Pc-4 450/21-  
ACCESSION NR: AP4049159 S/0.90/64/006/011/2073/2077

AUTHOR: Teylina, A. S.; Kotlyarova, S. V.

TITLE: Synthesis of phosphorus-containing homogeneous cation-exchange membranes on the basis of a polyethylene-polystyrene graft copolymer

SOURCE: Vy\*sokomolekulyarny\*ye soyedineniya, v. 6, no. 11, 1964, 2073-2077

TOPIC TAGS: graft polymer, polyethylene, polystyrene, cation exchange resin, polymer phosphorylation, surface resistance, exchange resin selectivity, tensile strength, ion exchange film

ABSTRACT: Turbidimetric, infrared and physicomachanical studies on the products of the grafting of polystyrene onto polyethylene showed that the grafts are formed in the form of a film on the surface of the polyethylene. The grafts are characterized by a high degree of stability and by a high degree of selectivity.

For the graft films, the infrared absorption spectra showed bands in the region of  $550\text{ cm}^{-1}$  characteristic for benzene rings. The intensity of the bands was proportional to the amount of grafted polystyrene. The relative change in the refractive index of the grafts was proportional to the amount of grafted polystyrene. The grafts were characterized by a high degree of stability and by a high degree of selectivity.

Card 1/3



ACCESSION NR: AP4949159

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleeva  
(Moscow Chemical Engineering Institute)

SUBMITTED: 27Jan64

ENCL: 00

SUB CODE: OC, MT

NO REF SOV: 003

OTHER: 000

Card 3/3

TEVLINA, A.S.; KOTLYAROVA, S.V.

Synthesis of phosphorus-containing homogenous cation-exchanging  
membranes on the basis of a polyethylene-polystyrene graft copolymer.  
Vysokom. soed. 6 no.11:2073-2077 N '64 (MIRA 18:2)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni Mandeleysva.



L 8863-66 EBT(m)/ETC/ETP(J)/ECG(m)/T RPL DS/WM/RM

ACC NR: AP5025969

SOURCE CODE: UR/0190/65/007/010/1818/1821

AUTHOR: Kolesnikov, G. S.; Tavlina, A. S.; Alovitdinov, A. B.

ORG: Moscow Chemical Technological Institute im. D. I. Mendeloyev  
(Moskovskiy khimiko-tekhnologicheskii institut)

TITLE: Carbon chain polymers and copolymers. Report No. 56.  
Polymerization of alpha-phenylvinylphosphinic acid in the presence of  
tetravalent cerium ions and polyvinyl alcohol

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 10, 1965,  
1818-1821

TOPIC TAGS: polymerization, copolymerization, phosphinic acid, block  
copolymer, polymer structure, chelate compound, ion exchange resin

ABSTRACT: Conditions were found for polymerizing alpha-phenylvinyl-  
phosphinic acid to make polymers of interest in ion exchange and for  
complexing polyvalent metal ions. Polymerization was effected in the  
presence of the polyvinyl alcohol-cerium ammonium nitrate oxidation-  
reduction system, then more tetravalent cerium ion than necessary to  
oxidize all the -CHOH of the polyvinyl alcohol was added. The formed  
graft copolymer gave a polychelate with the tetravalent cerium ion.

Card 1/2

UDC: 66.095.26+678.86

L 8863-66

ACC NR: AF5025969

The product swells alightly in water, is insoluble in organic solvents and in aqueous solutions of mineral acids and alkalies, is stable to 200-250°C, and has an ion exchange capacity of 3.6-3.9 mg.equiv/gm. Based on additional spectral data, a network structure is proposed for the polychelate.7 Orig. art. has: 1 figure, 5 equations and formulas.

SUB CODE: OC, HT/ SUBM DATE: 27Nov64/ ORIG REF: 001/ OTH REF: 001

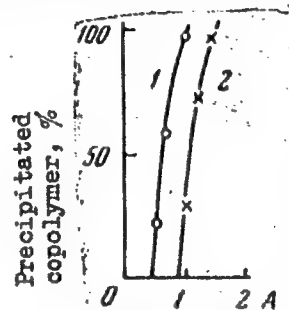
BVR  
Card 2/2

L 27315-66 EWT(m)/EWP(j)/T IJP(c) WW/RM  
 ACC NR: AP6008972 (9) SOURCE CODE: UR/0190/65/007/011/1913/1915  
 AUTHORS: Kolesnikov, G. S.; Tevlina, A. S.; Alovitdinov, A. B. 34  
 ORG: Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut) B  
 TITLE: Copolymerization of  $\alpha$ -phenylvinylphosphonic acid with methyl methacrylate and methacrylic acid 57th communication in the series: Carbocyclic polymers and copolymers  
 SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 11, 1965, 1913-1915  
 TOPIC TAGS: copolymer, methyl methacrylate, methanol, polymerization  
 ABSTRACT: This investigation was conducted to extend the work of G. S. Kolesnikov, A. S. Tevlina, and A. B. Alovitdinov (Vysokomolek. soyed., 7, 1818, 1965). It was desired to determine the molecular composition and the monomer reactivity ratios for the copolymerization of  $\alpha$ -phenylvinylphosphonic acid - methylmethacrylate and  $\alpha$ -phenylvinylphosphonic acid - methacrylic acid. The reactions were carried out at  $80 \pm 0.2^\circ\text{C}$  in the presence of 1 mol.% benzoyl peroxide in an atmosphere of nitrogen. The experimental results are presented in graphs and tables (see Fig. 1). 2  
 UDC: 66.095.26+678.744+678.8  
 Card 1/2

L 27315-66

ACC NR: AP6008972

Fig. 1. Dependence of the quantity of precipitated copolymer --  $\alpha$ -phenylvinylphosphinic acid, methylmethacrylate (in % of initial quantity) on the volume ratio precipitating agent: solvent (A). 1 -- solvent - methanol, precipitating agent - water; 2 -- solvent - methylethylketone, precipitating agent -- n-octane.



The monomer reactivity ratios for the systems investigated were found to be:  $\alpha$ -phenylvinylphosphinic acid - methylmethacrylate  $r_1 = 0.06 \pm 0.04$ ,  $r_2 = 3.30 \pm 0.2$ , and for  $\alpha$ -phenylvinylphosphinic acid - methacrylic acid  $r_1 = 0.36 \pm 0.12$ ,  $r_2 = 3.50 \pm 0.2$ . Orig. art. has: 2 tables and 2 graphs.

SUB CODE: 11/ SUBM DATE: 10Dec64/ ORIG REF: 003/ OTH REF: 004

Card 2/2

A L 11519-66 EWT(m)/EWP(j)/T RPL WW/RM

CC NR: AP6001873 SOURCE CODE: UR/0190/65/007/012/2160/2163

AUTHORS: <sup>4/4,55</sup> Kolesnikov, G. S.; <sup>4/4,55</sup> Tevlina, A. S.; <sup>4/4,55</sup> Novikova, S. P.; <sup>4/4,55</sup> Sividova, S. N. 49

ORG: Moscow Chemical-Technological Institute im. D. I. <sup>4/4,55</sup> Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut) B

TITLE: <sup>7,44,55</sup> Copolymerization of  $\alpha$ -phenylvinylphosphonic acid with acrylic acid and acrylonitrile. 58th communication in the series Carbocyclic Polymers and Copolymers

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 12, 1965, 2160-2163

TOPIC TAGS: polymer, polymerization, ~~polymerization rate, polymerization kinetics,~~ copolymer, copolymerization, acrylic acid, acrylic plastic, ~~phosphonic acid~~

ABSTRACT: The copolymerization of  $\alpha$ -phenylvinylphosphonic acid with acrylic acid and acrylonitrile was studied as an extension of previously published work on the polymerization properties of  $\alpha$ -phenylvinylphosphonic acid by G. S. Kolesnikov, A. S. Tevlina, and A. B. Alovitdinov (Vysokomolek. soyed., 7, 1913, 1965). The copolymerization was carried out in evacuated glass tubes in the presence of mole % benzoyl peroxide at 70°C. The experimental results are presented in tables and graphs (see Fig. 1). The copolymerization constants,  $r$  for the systems,  $\alpha$ -phenylvinylphosphonic acid - acrylic acid, and  $\alpha$ -phenylvinylphosphonic acid and acrylonitrile, were calculated and were found to be:  $r_1 = 0.44 \pm 0.03$ ,  $r_2 = 0.98 \pm 0.08$ .

UDC: 66.095.26+678.744+678.745+678.86

Card 1/2 2

L 11519-66

ACC NR: AP6001873

0

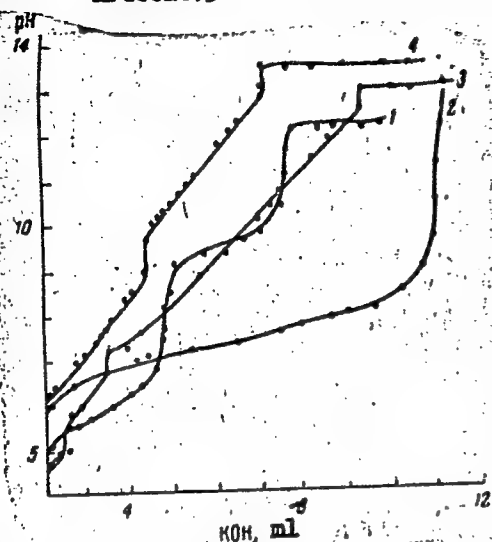


Fig. 1. Potentiometric titration curves.  
1 -  $\alpha$  phenylvinylphosphonic acid (I);  
2 - acrylic acid (II);  
3 - copolymer I - II;  
4 - copolymer I - acrylonitrile.

and  $r_1 = 0.32 \pm 0.07$ ,  $r_2 = 0.69 \pm 0.18$  respectively. The activity parameters  $Q$  and  $e$  for phenylvinylphosphonic acid were found to be  $0.80 \pm 0.02$  and  $0.76 \pm 0.04$  respectively. Orig. art. has: 4 tables and 1 graph.

SUB CODE: 0711/ SUBM DATE: 02Feb65/ ORIG REF: 003/ OTH REF: 004

Card 2/2

A 1 11523-66 EWT(m)/EWP(j)/T RPL WW/RM  
 ACC NR: AF6001874 SOURCE CODE: UR/0190/65/007/012/2164/2167

44,55 44,55 44,55  
 AUTHORS: Sividova, S. N.; Avetisyan, A. A.; Kelesnikov, G. S.; Sidel'kovskaya, F. P.; Tevlina, A. S.

44,55 44,55 71  
 70  
 B  
 ORG: Moscow Chemical-Technological Institute im. Mendeleev (Moskovskiy khimiko-  
 tekhnologicheskii institut); Institute for Organic Chemistry, AN SSSR (Institut  
 organicheskoy khimii AN SSSR) 44,55

7  
 TITLE: Copolymerization of N-vinylthiopyrrolidone with methylmethacrylate and  
 N-vinylpyrrolidone. 7 59th communication from the series, "Carbon chain polymers and  
 copolymers"

SOURCE: Vyssokomolekulyarnyye soyedineniya, v. 7, no. 12, 1965, 2164-2167

TOPIC TAGS: polymer, polymerization, copolymerization, methylmethacrylate,  
 polymerization kinetics

ABSTRACT: Data on the monomer N-vinylthiopyrrolidone (VTP), recently synthesized  
 by M. F. Shostakovskiy, F. P. Sidel'kovskaya, M. G. Zelenskaya, A. A. Avetisyan, and  
 B. V. Lopatin (Dokl, AN SSSR, 153, 1089, 1963), were extended by copolymerizing (VTP)  
 with methylmethacrylate and N-vinylpyrrolidone (VP). The copolymerization was  
 carried out at 60C in presence of 1 mole % of initiator, and the copolymerization  
 constants of VTP with methyl methacrylate were found to be:  $r_2 = 1.72 \pm 0.09$  and  $r_1 =$

Cord 1/2 UDC: 66.095.26+678.744+678.746

L 11523-66

ACC NR: AP6001874

$0.44 \pm 0.06$ ,  $Q_2 = 1.36$  and  $e_2 = -0.12$ . The corresponding constants for the copolymerization of VTP with VP were found to be:  $r_2 = 1.50 \pm 0.30$ ,  $r_1 = 0.13 \pm 0.02$ ,  $Q_2 = 1.61$  and  $e_2 = -0.10$ . The solubility in a number of solvents, the specific viscosity of one g/liter solutions of the polymers in dichloroethane, and the elastic strength of the polymers were determined. The experimental results are presented in tables and graphs (see Fig. 1).

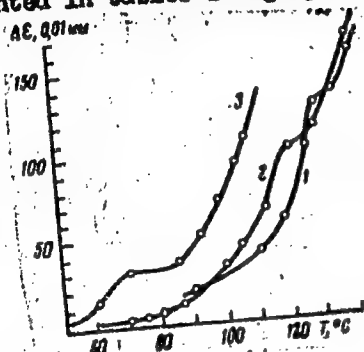


Fig. 1. Thermomechanical properties of the copolymers. (Applied stress 6 kg/cm<sup>2</sup>). 1 - VTP and methylmethacrylate in 1:1 mole ratio; 2 - the same copolymer, mole ratio 4:1; 3 - VTP and VP, mole ratio 4:1.

Orig. art. has: 5 tables and 2 graphs.

SUB CODE: 07, 11/ SUBM DATE: 02Feb65/ ORIG REF: 003/ OTH REF: 004

Card 2/2



L 4011-66 : EWT(m)/EPF(c)/EMP(j)/T/ETC(m) RPL WW/RM  
 ACCESSION NR: AP5024399 44.5 UR/0286/65/000/015/0080/0081  
 AUTHORS: Tevlina, A. S.; Kotlyarova, S. V.; Levin, B. B.; Fetin, I. N. 44.5 39  
 TITLE: Method for obtaining grafted copolymers. Class 39, No. 173407 B  
 SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 80-81  
 TOPIC TAGS: graft copolymer, copolymerization, fire resistant material  
 ABSTRACT: This Author Certificate presents a method for obtaining grafted copolymers by copolymerization of vinyl monomers with polymers or copolymers of  $\alpha$ -olefin in bulk at high temperatures in the presence of peroxide or azo-initiators. To obtain fire resistant copolymers having ion exchange properties, the process of copolymerization is carried out in the presence of  $\alpha$ -phenylvinylphosphinic acid. 7  
 ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleeva (Moscow Chemical Engineering Institute) 44.5  
 SUBMITTED: 26Jun63 ENCL: 00 SUB CODE: MT, GC  
 NO REF SOV: 000 OTHER: 000 UDC: 678.71/74  
 Card 1/1 *beh*

L 7888-66 EWT(m)/EPF(c)/EWP(j) RM

ACC NR: AP5025043

SOURCE CODE: UR/0286/65/000/016/0085/0085

AUTHORS: Kolesnikov, G. S.; Tevlina, A. S.; Novikova, S. P.; Alovitdinov, A. B.;  
Levin, B. B.; Trunina, G. I.

ORG: none

TITLE: Method for obtaining poly- $\alpha$ -phenylvinylphosphonic acid. Class 39, No. 173955  
 173955 /announced by Moscow Order of Lenin Chemico-technological Institute im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut)/

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 85

TOPIC TAGS: phenylvinylphosphonic acid, polymer, *organic phosphorus* compound, cerium compound, alcohol

ABSTRACT: This Author Certificate presents a method for obtaining poly- $\alpha$ -phenylvinylphosphonic acid. The  $\alpha$ -phenylvinylphosphonic acid is polymerized in an aqueous solution in the presence of redox initiators such as salts of tetravalent cerium and polyvinyl alcohol.

SUB CODE: 07/ SUBM DATE: 08May64

Card 1/1

UDC: 678.746.87

L 30294-66  
ACC NR: AP6002471

FWT(m)/ETC(f)/EMP(j)/T/ENG(m) RPL DS/WW/RM  
(A)

SOURCE CODE: UR/0191/66/000/001/0006/0008

AUTHORS: Kolesnikov, G. S.; Tevlina, A. S.; Chuchin, A. Ye.; Baraboshkina, I. A.

ORG: none

TITLE: Graft copolymers of styrene-divinylbenzene-polyarylene ethyl and styrene-divinylbenzene-polyarylene ethyl hydroperoxide

SOURCE: Plasticheskiye massy, no. 1, 1966, 6-8

TOPIC TAGS: graft copolymer, chain reaction, polymerization, polymer, polymer chemistry, polystyrene

ABSTRACT: Graft copolymerization of styrene-divinylbenzene-polyarylene-ethyl and styrene-divinylbenzene-polyarylene-ethyl hydroperoxide were studied to investigate the possibility of synthesizing large-pore sulfo-cation-exchangers on the basis of three-dimensional graft-copolymers. The copolymers were synthesized by two methods: 1) by grafting styrene to a polymeric hydroperoxide as described by the authors (Vysokomolek, soyed., 7, 10, 1753, 1965), and 2) by chain transfer via the mobile hydrogen atom of polyarylene ethyl in the presence of a free radical initiator. The degree of swelling in benzene solution, the molecular weight distribution, the ion absorption capacity, and the amount of hydroperoxide in the synthesized polymers were determined. The experimental results are presented in graphs and tables (see Fig. 1). It was found that the synthesized sulfo-cation-exchangers were able to

Card 1/2

UDC: 678.746.22-134.6

L 30994-66

ACC NR: AP6002471

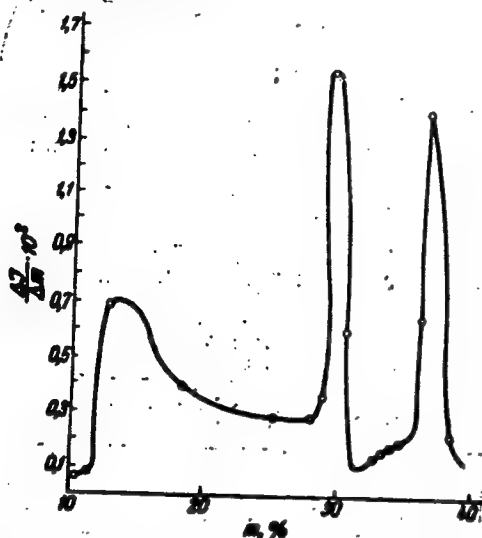


Fig. 1. Molecular weight distribution determined by turbidometric titration of dioxane solution of the products of polymerizing styrene in the presence of polyarylethyl.

sorb large organic ions. The sorption of low molecular weight ions was more complete than of higher molecular weight ions. Orig. art. has: 3 tables and 4 graphs.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 001

Card 2/2 LC

L 20807-66 EWP(j)/EWT(m)/ETC(f)/EWG(m)/T RM/DS/WW

ACC NR: AP6005946 (A)

SOURCE CODE: UR/0191/56/000/002/0012/0013

AUTHORS: Kolesnikov, G. S.; Teylina, A. S.; Alovitdinov, A. B.

ORG: none

TITLE: Synthesis of ion exchange resins by copolymerizing  $\alpha$ -phenylvinylphosphinic acid with  $\alpha$ -methylmethacrylate and methacrylic acid by means of suspension polymerization

SOURCE: Plasticheskiye massy, no. 2, 1966, 12-13

TOPIC TAGS: copolymerization, ion exchange resin, methacrylate plastic, phosphinic acid, methylmethacrylate

ABSTRACT: Suspension copolymerization of  $\alpha$ -phenylvinylphosphinic acid (I) with methylmethacrylate (II) and with methacrylic acid (III) has been investigated in the presence and absence of divinyl-benzene (IV), at varying ratios of reagents, to obtain optimal conditions for production of copolymer with the maximal number of I residues. The obtained results were applied to the synthesis of cationic exchange resins. Optimal amount of IV for reaction of I and II was 2% by weight, and for reaction of I with III -- 8% by weight of the total reaction mixture. Synthesis of ion exchange resins with the use of monomers containing ionogenic groups assures

Card 1/2

UDC: 661.183.123

L 20807-66

ACC NR: AP6005946

more uniform distribution of these groups in the polymeric structure. Static exchange capacity of resins produced is 4--4.5 mg equiv/g of 0.1N KOH. The resins possess high mechanical durability and are stable to heating at 150C. Spherical shape of the granules is preserved after repeated usage. Sorption and desorption of ceric ions by the exchange resin were investigated. The authors express their gratitude to B. B. Levin and to their co-workers in synthesizing of I. Orig. art. has: 2 tables and 1 figure.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001

Card 2/2

L 46995-66 ENT(j)/ENT(m)/T RT/DS/WH

ACC NR: AP6027276

(A)

SOURCE CODE: UR/0191/66/000/008/0021/0023

AUTHOR: Alovitdinov, A. B.; Teylina, A. S.; Kolesnikov, G. S.

31/B

ORG: none

TITLE: Polyelectrolytes based on copolymers of  $\alpha$ -phenylvinylphosphonic acid

SOURCE: Plasticheskiye massy, no. 8, 1966, 21-23

TOPIC TAGS: ion exchange resin, phosphonic acid, vinyl compound, copolymer

ABSTRACT: Polyelectrolyte ion exchangers formed by the copolymerization of  $\alpha$ -phenylvinylphosphonic acid ( $\alpha$ -PVPA) with vinyl monomers are used for separating ions of polyvalent metals. The strong bonding between these ions and the phosphonic and phosphonous acid groups is due to chelation. The paper gives the results of a potentiometric titration of polyelectrolyte ion exchangers synthesized by copolymerization of  $\alpha$ -PVPA with vinyl monomers having no ionogenic groups. The curves obtained (pH vs. KOH added) showed two inflections corresponding to the degrees of dissociation of monomeric  $\alpha$ -PVPA. From these curves, the "apparent" pK values of the active groups of the ion exchangers were determined and found to coincide with the pK of the monomeric acid. The carboxyl groups of ion exchangers synthesized by copolymerization of  $\alpha$ -PVPA with methacrylic and acrylic acids dissociate at pH 4-5.5. Potentiometric titration curves of four samples of ion exchangers (AF-40, MAF-40, MMF-0,40 and SF-0,50) were recorded in the presence of 0.1 N NaCl and in its absence; in the presence of NaCl,

Card 1/2

UDC: 678.746.872-13 : 661.183.123

ACC NR: AP6027276

they differed substantially from each other, showing distinct working intervals of the various groups of the polyvalent cation exchanger. It is shown that cation exchangers containing -COOH groups in addition to  $-P(O)(OH)_2$  groups have a greater capacity than those containing a phosphonic group only. Orig. art. has: 3 figures and 2 tables.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 006

Card 2/2



5.383/

45183  
S/882/62/000/002/050/100  
A057/A126

AUTHORS: Losev, I.P., Trostyanskaya, Ye.B., Tevlina, A.S.

TITLE: A method for the production of ion exchange resins

SOURCE: Sbornik izobreteniy; plastmassy i sinteticheskiye smoly. no. 2. Kom. po delam izobr. i otkrytiy. Moscow, TsBTI, 1962, 28 - 29 [Author's certificate no. 131081, cl. 39b, 2201 (appl. no. 643687 of November 9, 1959)]

TEXT: It is suggested to soak granules of ion exchange resins on the basis of styrene co-polymers of the type ACM (ASM), or CBJ (SVD) with non-saturated amines, for instance methylvinylpyridine, or with non-saturated acids, for instance vinylsulfonic acid, and treat them afterwards with dimethylformamide and methyl iodide. 20 g cation exchange resin type CBJ-3 (SVD-3) with a swelling capacity in water of 120% and an absorption capacity related to the Ca ion from a CaCl<sub>2</sub> solution of 4.4 mg equiv/g is treated with 100 g 20% NaCl solution, washed with distilled water until a negative chloride reaction occurs in the wash water, and is dried at 80°C to a residual humidity of 10 - 20%. The cation

Card 1/2

A method for the production of ion exchange resins

S/882/62/000/002/050/100  
A057/A126

exchange resin is left afterwards for 4 h in a solution prepared from 100 g 60 - 65% sodium vinylsulfonate, 4 g (0.4%) ammonium persulfate, and 0.66 g (0.66%) sodium bisulfite. The cation exchange resin is then filtered off, held 4 h at room temperature, 4 h at 80°C regenerated with a HCl solution, and washed with distilled water. The swelling capacity of the obtained cation exchange resin is 180%, and the capacity related to sodium ion from a NaOH solution is 8 mg equiv./g. The patent allows an increase of the capacity of ion exchange resins.

[Abstracter's note: Complete translation]

Card 2/2

*Tevlina, A. S.*  
17 (2)

SOV/19-59-2-71/600

AUTHORS: Losev, I. P., Laskorin, B. N., Trostyanskaya, Ye. B., and  
Tevlina, A. S.

TITLE: ~~Submitted to the Gostekhnika, USSR.~~  
A Method of Concentrating and Separating Streptomycin

PERIODICAL: Byulleten' izobreteniy, 1959, Nr 2, p 22 (USSR)

ABSTRACT: Class 12d, 25<sub>01</sub>, Nr 117525 (422979 of 14 Feb 1950)  
Submitted to the Gostekhnika, USSR. A method of concentrat-  
ing and separating streptomycin from diluted solutions with  
the use of absorbing agents in the form of synthetic cation-  
exchange resins, such as "SBS" and "SM" sorbents treated  
with a 20%-solution of sodium chloride.

Card 1/1

5(1)

SOV/19-59-2-300/600

AUTHORS: Losev, I.P., Trostyanskaya, Ye.B., and Tevlina, A.S.

TITLE: A Method of Obtaining Cation-Exchanging-Sorbents

PERIODICAL: Byulleten' izobreteniy, 1959, Nr 2, p 66 (USSR)

ABSTRACT: Class 30b, 22<sup>01</sup>. Nr 117517 (365958 of 3 December 1948). Submitted to the Gostekhnika, USSR. The method consists in obtaining cation-exchanging sorbents by the sulfation of synthetic high-molecular compounds. Copolymer of butadiene with styrene is used for the high-molecular compound to be sulfated.

Card 1/1

TEVLONA, A. S.

ion exchange

SECRET

Samarov, G. V.	Carboxylic exchangers, chromatography theory	Institute of High Molecular Weight Compounds, Academy of Sciences, USSR, Leningrad
Saritskaya, Ye. M.	Ion exchange resin research	All Union Scientific Research Institute of Antibiotics
Sayashkin, Ye. N.	Inorganic separation	Central Institute of Blood Hematology and Trans- fusion, Moscow
Sengarin, M. M.	Character, analysis, stability of ion exchange resins	Institute of Geochemistry and Analytical Chemistry Acad. V. I. Vernadsky, Moscow
Shmyagin, P. M.	Applications, zeolites, chromatography	Moscow Pharmaceutical Institute
Sitnikov, V. E.	Analysis	
Shirob, M. S.	Water condi- tioning	Institute of Power Engineering, Academy of Sciences, USSR
Shostenko, Ye. Y.	Ion exchange technology	Scientific Research Chemical-Pharmaceutical Institute, Khar'kov
Silatsyn, P. G.	Zeolites, inorganic	Technical Institute of the Fish Industry and Economy Acad. A. I. Shklyar, Moscow
Sholomok, R. P.	Physical chemistry	Khar'kov State University Acad. A. M. Gor'lyi
Shubotina, A. Z.	Inorganic separation	Gorkiy State University Acad. M. I. Gorbachevsky
Tavlina, A. S.	Preparation of ion exchange resins and substances	Moscow Chemotechnological Institute Acad. D. I. Mendeleev

- 26 -  
SECRET

SOVIET RESEARCH, DEVELOPMENT AND APPLICATION OF ION  
EXCHANGE

20: 241 Intell Rpt C-12-3740-5, 1 D 19 G, Secret

5(3)

SOV/19-59-4-170/317

AUTHORS: Losev, I.P., Trostyanskaya, Ye.B., and Tevlina, A.S.

TITLE: A Method of Obtaining a Cation-Exchanging Sorbent

PERIODICAL: Byulleten' izobreteniy, 1959, Nr 4, p 37 (USSR)

ABSTRACT: Class 39c, 2. Nr 118207 (425201 of 7 July 1950). Submitted to the State Committee at the USSR Council of Ministers for the Introduction of Advanced Technique into the National Economy. A method as in title, in which the sorbent is obtained by condensing acid phosphate of phenol ethers with formaldehyde at 80° C.

Card 1/1

S/882/62/000/002/073/100  
A004/A126

AUTHORS: Losev, I.P., Trostyanskaya, Ye.B., Tevlina, A.S., Nefedova, G.Z.

TITLE: A method of producing insoluble polymer products

SOURCE: Sbornik izobreteniy; plastmassy i sinteticheskiye smoly. no. 2.  
Kom. po delam isobr. i otkrytiy. Moscow, TsBTI, 1962, 39 [Author's  
Certificate no. 133221, cl. 39b, 22<sub>01</sub> (appl. no. 628967 of May 21,  
1959)]

TEXT: Insoluble polymer products on the base of styrene and divinyl benzene copolymers are used as selective ion absorbers from electrolyte mixtures. The method of producing insoluble polymers is characterized by that the process is performed according to the following schedule: granulation copolymerization; chloromethylation of the copolymer swollen in chloroethane; amination of the swollen chloromethylated copolymer in dioxane triethanolamine at 100°C for 8 h; oxidation of the obtained amine swollen in dioxane by heating with nitric acid (specific gravity 1.34) at 80 - 100°C for 4 h; treatment of the obtained product with potassium iodide at 94°C for 3 h and second oxidation with a 56% solution of

Card 1/2

A method of producing insoluble polymer products

nitric acid at 95 - 100°C for 4 h. The insoluble complexes obtained by this method have the shape of spherical granules of 0.1 - 0.5 mm, swelling in water up to 71%.

[Abstracter's note: Complete translation]

S/882/62/000/002/073/100  
A004/A126

Card 2/2



87295

5.5700

S/019/60/000/021/077/145  
A152/A029

AUTHORS: Losev, I.P.; Trostyanskaya, Ye.B.; Tevlina, A.S.; Nefedova, G. Z.

TITLE: A Method for Obtaining Insoluble Polymeric Products

PERIODICAL: Byulleten' izobreteniy, 1960, No. 21, p. 47

TEXT: Class 39b, 22<sup>01</sup>. No. 133221 (628967/23 of May 21, 1959). This method is based on the use of styrene and divinylbenzene copolymers. It has the following special feature: in order to use the above products as selective absorbers of ions from electrolyte mixtures, styrene and divinylbenzene are subjected to a synthesis with esters of unsaturated acids and polyatomic alcohols, or with esters of polybasic acids and unsaturated alcohols, with an introduction of nitrilotricarboxylic acids or triaminotrialkylamines.

X

Card 1/1

S/019/61/000/002/044/111  
A156/A027

AUTHORS: Losev, I.P., Trostyanskaya, Ye.B., and Tevlina, A.S.

TITLE: A Method for Obtaining Anionites

PERIODICAL: Byulleten' izobreteniy, 1961, No. 2, p. 39

TEXT: Glass 39b, 22<sup>01</sup>. No. 135218 (468485/23 of May 10, 1958). 1. A method of obtaining anionites based on vinylpyridine copolymers, the specific feature of which is its applicability to a greater number of ion-exchange resins used as raw materials. For this purpose, vinylpyridine rubber waste is used as the copolymer. This waste is vulcanized in the presence of sulfur and magnesium oxide, until it becomes like an ebonite, whereupon the product is granulated, 2. For the purpose of obtaining a high-base anionite, the copolymer granules are treated with ethyl bromide in the presence of methyl alcohol. 3. The new feature of this is the use of vulcanizers, produced as specified in 1 and 2, for the manufacture of homogenous anionite membranes, by known means. ✓

Card 1/1

ACCESSION NR: AP4041917

S/0286/64/000/012/0070/0071

AUTHOR: Losev, I. P.; Tavlina, A. S.; Kotlyarova, S. V.

TITLE: Preparative method for gas-impervious, homogeneous ion-exchange membranes. Class 39, No. 163348

SOURCE: Byul. izobr. i tovar. znakov, no. 12; 1964, 70-71

TOPIC TAGS: polyethylene, poly(vinyl alcohol), vinylphosphoric acid, vinylbenzylphosphoric acid, ion exchange, ion exchange membrane, copolymerization

ABSTRACT: An Author's Certificate has been issued for a process for preparing gas-impervious homogeneous ion-exchange membranes by graft copolymerization of vinyl- or vinylbenzyl-phosphoric acid or their esters, or methylvinylpyridine with polyethylene or poly(vinyl alcohol) film by swelling the film in monomers. The monomer solution is prepared in the presence of peroxides or hydroperoxides.

ASSOCIATION: none

Card: 1/2

SOURCE: Byulleten' izobrazheniy i izobreteniy, No. 1, 1964, p. 10.

It is noted: acrylonitrile, copolymer, styrene, acrylonitrile, styrene, acrylic acid, divinylbenzene, initiator, heat resistant.

The copolymer acrylonitrile presents a series of properties, including the copolymerization of styrene, and the copolymerization of styrene and acrylonitrile. The copolymerization of styrene and acrylonitrile is carried out in the presence of a catalyst, and the copolymerization of styrene and acrylonitrile is carried out in the presence of a catalyst.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet, Moscow, U.S.S.R.  
herdeleyeva (Moscow Order of Lenin)

Card 1/2

L 20747-65

ACCESSION NR: AP5001910

SUBMITTED: 07Dec63

SUB CODE: 00

2001: 00

OTHER: 000

... ..  
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merization, sulfonation, phosphorylation  
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L 23289-66 EWT(m)/ETC(f)/EWG(m) DS/RM

ACC NR: AP6006983

SOURCE CODE: UR/0190/66/008/002/0297/0301

AUTHORS: Kolesnikov, G. S.; Tevlina, A. S.; Alovitdinov, A. B.; Ganzha, L. A.

ORG: Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut)

TITLE: Synthesis of homogeneous ion exchange membranes by grafting  $\alpha$ -phenyl-vinyl phosphinic acid to water-insoluble films of polyvinyl alcohol (60th report in the series "Aliphatic polymers and copolymers")

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 2, 1966, 297-301

TOPIC TAGS: graft copolymer, ion exchange membrane, polyvinyl alcohol

ABSTRACT: Graft copolymerization of  $\alpha$ -phenylvinyl phosphinic acid (I) to cross-linked water-insoluble films of polyvinyl alcohol (II) was investigated in the hope of producing ion exchange membranes with a uniform distribution of ionogenic groups. Copolymerization was performed with a variety of redox systems: 1)  $Ce^{4+}$  - II, 2) potassium persulfate - II, 3) potassium persulfate-potassium thiosulfate. Initiation takes place by formation of a macroradical which acts as a reducing agent. System (2) and II cross-linked thermally in the presence of I gave the best results. Static exchange capacity (SEC) of the graft copolymers as a function of the content of P is illustrated in Figs. 1a and b. The cation exchange membranes thus produced possess satisfactory physical, mechanical, and electrochemical properties.

Card 1/2

UDC: 541.64+678.744+678.86



L 23289-66

ACC NR: AP6006983

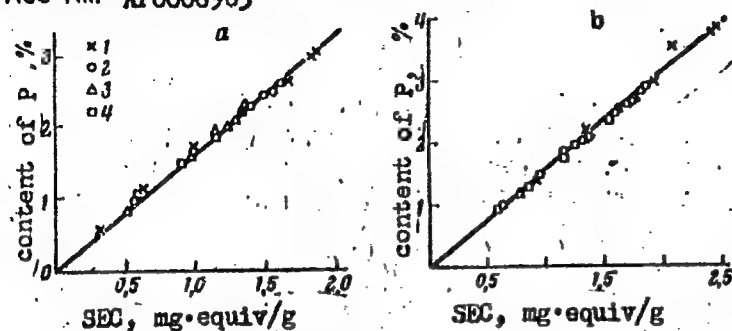


Fig. 1. SEC of graft copolymers as functions of P content: a - reaction conducted in aqueous medium, b - reaction conducted in aqueous-methanolic medium (1:1). Films cross-linked; 1 - thermally in the presence of I, 2 - with epichlorohydrin, 3 - thermally, 4 - with formaldehyde.

Orig. art. has: 3 tables and 2 figures.

SUB CODE: 07/

SUBM DATE: 19Mar65/

ORIG REF: 004/

OTH REF: 004

Card 2/2 FV

4.10.11-01 (14) 11/111  
 ACC NO: AP609926 (A)

SOURCE CODE: UR/0413/66/000/0015/0089/0090

INVENTORS: Kolesnikov, G. S.; Tovlina, A. S.; Chuchun, A. Yo.; Barabashkina, I. A.; Yushmanova, V. A.

ORG: none

TITLE: Method for obtaining porous sulfo-ion-exchange resin. Class 39, No. 1844508 /announced by Moscow Institute of Chemical Technology imeni D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut)/

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 89-90

TOPIC TAGS: ion exchange resin, polymerization, porosity, polymer, resin

ABSTRACT: This Author Certificate presents a method for obtaining a porous sulfo-ion-exchange resin by graft copolymerization of styrol and a polymer containing isopropyl groups in the presence of a free-radical type initiator and of divinyl benzene as the cross-linking agent. The polymerization is followed by sulfonation with either sulfuric acid or weak oloum. To obtain a polymer with different porosity (capable of sorbing large organic ions), polyarylenealkyl is used as the isopropyl-group-containing polymer.

SUB CODE: 11/ SUBM DATE: 05Feb65

Card 1/1 UDC: 661.183.123.2:62-405.8:678.746.22-139:66.094.403

L 10339-67 WWP(j)/EWT(m) IJP(c) RM/DS

ACC NR: AP609908 (A)

SOURCE CODE: UR/0413/66/000/015/0086/0086

INVENTORS: Kolesnikov, G. S.; Tevlina, A. S.; Novikova, S. P.; Levin, B. B.; Chernomyrdina, L. F.; Abramova, T. D. 45

ORG: none

TITLE: A method for obtaining heat-resistant and chemically stable cationite membranes. \ Class 39, No. 184427 \ /announced by Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy khimiko-tehnicheskiy institut) /

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 86

TOPIC TAGS: ion exchange membrane, monomer, polymer, graft copolymer, fluorine, acrylic acid

ABSTRACT: This Author Certificate presents a method for obtaining heat-resistant and chemically stable cationite membranes by grafting monomer compounds containing ionogenic groups to fluorine-containing copolymers. \ To obtain membranes characterized by a selectivity in separating the ions of polyvalent metals, a mixture of  $\alpha$ -phenylvinyl phosphinic acid and acrylic acid or acrylonitril is used as the monomer compound. 15

Card 1/1<sup>mb</sup> SUB CODE: 07/ SUBM DATE: 13May65 UDC: 661.103.123.2:678.743-139

L 10423-67 EWT(m) DS/RM  
 ACC NR: AP6029913 (A) SOURCE CODE: UR/0413/66/000/015/0087/0087  
 AUTHORS: Kolesnikov, G. S.; Chuchin, A. Ye.; Tavlina, A. S.; Yushmanova, V. A. 32  
 ORG: none  
 TITLE: A method for obtaining a porous sulfocationite. Class 39, No. 18434  
 [announced by Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy  
 khimiko-tekhnologicheskii institut)]  
 SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 87  
 TOPIC TAGS: copolymerization, styrol , sulfuric acid, ion  
 ABSTRACT: This Author Certificate presents a method for obtaining a porous sulfo-  
 cationite by the copolymerization of styrol and divinyl benzine. The copolymer so  
 obtained is then sulfurized with sulfuric acid. To increase the sorptional ability  
 of the cationite to large organic ions, a polymer hydroperoxide from polyarylenealkyl  
 is introduced into the copolymerization reaction.  
 SUB CODE: 11, 07/ SUBM DATE: 01Dec64  
 Card 1/1 6/70 UDG: 661.183.123.2:678.746.22-136.622:66.094.524.5

TEVONYAN, M. S. (Kavkazskiy institut mineral'nogo syr'ya)

"The successful experiments on the separation of a lead-copper concentrate with potassium permanganate"

report presented at the 4th Scientific and Technical Session of the Mekhanobr  
Inst, Leningrad, 15-18 July 1958

**"APPROVED FOR RELEASE: 03/14/2001**

**CIA-RDP86-00513R001755520001-5**

**APPROVED FOR RELEASE: 03/14/2001**

**CIA-RDP86-00513R001755520001-5"**

S/137/62/000/002/029/144  
A006/A101

AUTHORS: Vartanyan, K. T., Tevonyan, M. S.

TITLE: Investigating a new depressor for selective flotation of molybdenum-copper ores

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1962, 8, abstract 2G55  
("Yezhegodnik Kavkazsk. in-ta mineral'n syr'ya za 1957 g", Moscow, Gosgeoltekhizdat, 1959, 20)

TEXT: The authors investigated a new depressor for flotating Agarak-type Cu-Mo-ores, containing carbonaceous substances. When investigating this depressor, ores of the Agarak deposit were employed which contained in %: Mo 0.05, Cu 0.3, Fe about 2. The ore contains 0.6% carbonaceous substances. The new depressor which can be used for depressing both carbonaceous substances and Cu minerals, will, probably, ensure the production of conditional Mo-concentrate.

A. Shmeleva

[Abstracter's note: Complete translation]

Card 1/1

S/137/62/000/002/031/144  
A006/A101

AUTHORS: Tevonyan, M. S., Gogvadze, L. D.

TITLE: Studying the concentration ability of molybdenum-copper ores of the Gekgyundur deposit (Azerbaijan SSR)

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1962, 8, abstract 2G58 ("Yezhegodnik Kavkazsk. in-ta mineral'n. syr'ya za 1957 g.", Moscow, Gosgeoltekhizdat, 1959, 22)

TEXT: The concentration ability of 2 Mo-ore samples was investigated. Sample no. 1 was Mo-ore and contained 2.10% Mo, 0.10% Cu. From this sample conditional Mo-concentrate was obtained, containing 47.3% Mo at 82% extraction. It is possible to obtain also high-percentage Mo-concentrate with 50 and 52% Mo at a somewhat lower extraction percentage (75%). Sample no. 2 was Cu-Mo ore with 0.14% Mo, 0.21% Cu and a high pyrite content. As a result of 6 purification operations with addition of cyanogen fuse and lime, a conditional Mo-concentrate was obtained with 47.8% Mo at 53% extraction, and conditional Cu-concentrate with 11.7% Cu at about 60% extraction. ✓

A. Shmeleva

[Abstracter's note: Complete translation]

Card 1/1



S/137/62/000/002/028/144  
A006/A101

AUTHORS: Vartanyan, K. T., Tevonyan, M. S.

TITLE: Investigating the concentration capacity of low-molybdenum ore of the Dzhindarin deposit (Armenian SSR)

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1962, 8, abstract 2654 ("Yezhegodnik Kavkazsk. in-ta mineral'n. syr'ya za 1957 g.", Moscow, Gosgeoltekhizdat, 1959, 22-23)

TEXT: The authors investigated poor Cu-Mo ore containing 0.5% Cu and 0.022% Mo. According to the scheme of direct selective flotation a conditional Mo concentrate was obtained, containing 47.88% Mo, with extraction of 53% in an open cycle. The Cu-content in the Mo-concentrate was 0.56%. There is a possibility of obtaining a Mo-product with a considerably higher extraction percentage. Conditional Cu-concentrate is obtained with 15% Cu content at 65% extraction. To activate Cu minerals it is proposed to replace  $H_2SO_4$  by new activators - HCl,  $HNO_3$ ,  $H_2O_2$  and  $K_2Cr_2O_7$ .

A. Shmeleva

[Abstracter's note: Complete translation]

Card 1/1

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